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ABSTRACT

This paper presents a multi-phased approach to identifying and correcting gender-based salary inequities within institutions of higher education. The major steps in this approach involve: (1) determining if a problem situation exists by using a conceptually sound, objective procedure that does a legal and effective job of explaining faculty salaries; (2) developing feasible adjustment strategies if inequities exist which solve or improve the situation; and (3) implementing corrective actions and establishing a monitoring process that is consistent with the culture and values of the institution. The paper focuses on the issues surrounding the development of a salary equity study using regression analysis. This is not only a common methodology for identifying the location and magnitude of problems related to faculty salaries, but is also being increasingly used by both plaintiffs and defendants in salary discrimination litigation. The paper concludes with a discussion of the implementation issues that exist that may present themselves during the process. Contains 29 references. (GLR)

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Faculty Salary Equity: Issues and Options

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Jean Endo
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Faculty Salary Equity: Issues and Options

Abstract

How do you develop a salary equity analysis procedure that will help identify whether or not your institution has a reasonably equitable and legally defensible salary structure? This paper presents a multi-phased approach to identify and correct salary inequities based on gender. The major steps are to:

- Determine if a problem situation exists by using a conceptually sound, objective procedure that does a legal and effective job of explaining faculty salaries.
- Develop feasible adjustment strategies if inequities exist which solve or improve the situation.
- Implement the correction and establish a monitoring process that is consistent with the culture and values of the institution.

Involving and educating key university personnel in the selection of models and strategies is critical to acceptance and validation of the process and to minimizing negative reaction internal or external to the campus.

This paper is designed to be helpful to administrators and researchers who need to make informed choices about salary equity models and implementation strategies.

Introduction

It is hard to miss the media attention focused on gender equity issues for faculty. In the last few years, The Chronicle of Higher Education and other higher education publications have run a number of articles ranging from reports of settlements for female faculty members and reinstatements of faculty members to cases of reverse discrimination. Salary differences between male and female faculty are pervasive and well documented (Moore and Johnson, 1989; American Council on Education, 1990) and seem to persist even when controlling for any number of variables thought to be important to explaining faculty salaries. The prospect of lawsuits by female faculty based on the Equal Pay Act, or more likely, Title VII of the Civil Rights Act, inspired many campus administrators to test their salary structures at least once to ascertain the extent of the local problem and their legal liability. Others have found that a single fix is never sufficient and have managed, over time, to implement a relatively well-accepted process for review and adjustments. The issue has not gone away, however, and it appears to be even more pressing as colleges and universities begin to take seriously a commitment to diversity and look at factors critical to recruiting and retaining female faculty.

Whatever the motivation, it is not easy for administrators to know how to proceed with salary equity studies since there are numerous legal, technical, and political complexities to be considered and resolved. Some common questions that must be dealt with include:

- How do you determine if a problem situation exists?
- What, if anything, can or should be done to correct the problem situation?
- How do you deal with interest groups pressing for involvement or disclosure of the details of the process, or with those who criticize the methodology so severely that they dismiss the evidence and deny the need to take action?

For those who embark on salary equity studies, there are several logical choices of methodology: paired-comparison approach and regression analysis (Cunningham and Hemmeter, 1991; Hengstler et al, 1982; Braskamp and Johnson, 1978). Some campuses have successfully used a combination of the two, by using a regression analysis to identify individuals with salaries lower than predicted by the model and then turning to careful review of individual cases to determine if there is a problem and its extent. This paper will focus on the issues surrounding the development of a salary equity study using regression analysis because this is a common methodology for identifying the location and magnitude of problems related to faculty salaries (Rosenthal and Yancey, 1985) and is increasingly used by both plaintiffs and defendants in salary discrimination litigation (Tesfagiorgis, 1991). Implementation issues will also be given some attention since this part of the process may also present difficulties.

Developing a Regression Model

In the simplest terms, regression analysis is a statistical method for explaining the variance of a dependent variable such as faculty salaries. By testing various combinations of variables thought to be important in setting or explaining faculty salaries, the researcher seeks the "best fit" of explanatory variables for the set of salaries under review. Although there are a number of statistical procedures available to model salaries, linear regression is generally the model of choice (Gray, 1985; Smart, 1991). It uses some standardized (often academic-year) salary as the dependent measure and a variety of independent variables depending on institutional priorities and available data.

There are several alternative regression models. Moore (1992) reviewed salary equity models used at twelve institutions, as well as those discussed by Pezzullo and Brittingham (1979) in Salary Equity, and identified two major types of models. The first was to predict white male salaries and then apply the same formula to female salaries. Whenever a negative residual resulted for a female in that the predicted salary of the female was more than her actual salary, the salary of the female was flagged for further scrutiny to determine what caused the difference. This model, discussed by Scott (1979) and often referred to as the "best white male model," assumes that inclusion of the group which may have lower salaries as a result of discrimination taints the model. However, this approach is only appropriate when

the females fall in the same range as do the males on the majority of variables included in the analysis. For example, if most women are at lower ranks and fewer years of service than most men at the institution, then the "best white male model" may result in an equation that cannot legitimately be applied to female salaries because the variables which characterize these women are generally out of the range of the model (McCabe, 1979). If the "best white male model" were applied in this scenario, it is highly likely that inequities would appear to result. In actuality, the inequities are at least partially explained by lower rank and fewer years of experience and may not be related to gender. Another potential problem with the "best white male model" is limited sample size resulting from exclusion of a significant portion of faculty members.

The second model identified by Moore (1992) includes both male and females and calculates the regression weight for the variable gender. This approach was also discussed by Tesfagiorgis (1991), who went so far as to say that the regression weight given for the variable gender could be used in court to justify the remedy sought.

This second approach is also not without problems, this time coming from the the relationship between the independent measures and gender. This condition, called multicollinearity, does not limit the ability to explain salaries, but it does cause problems in interpretation of the regression weight for gender when it is included in an equation to explain salaries. In other words, when the variable for gender is used, its resulting regression weight includes salary difference which can actually be explained by other measures in the equation (McLaughlin, Zirkes, and Mahan, 1983). The use of the test of the significance of the regression weight is not a test of salary inequity attributable only to gender. The test involves consideration of the collinearity of gender with other independent variables, in effect it "adjusts" gender for demographic and professional characteristics or, if one follows the logic of Smart (1991), one is left with the need to "adjust" rank, along with other independent measures for gender. This process of adjustment, required by the statistics of regression in the presence of collinearity, does not seem to be consistent with the current interpretation of disparate treatment.

A third model, to be described below more fully, explains salary without use of gender as an independent variable. The residuals are computed and compared for gender, gender by rank, and gender by discipline differences.

Selecting a Frame of Reference:

Should faculty have their salaries compared to others in the same discipline, others at the same rank, or all others in the same institution? In other words, should separate regression equations be used to predict salaries for faculty in business versus architecture? for full professors versus associate professors? In fact there are important arguments in support of different options, which are referred to here as frames of reference. Smart and McLaughlin (1978) indicate that faculty in different disciplines are paid to do different types of activities. Sponsored research, for example, may be a highly rewarded activity in

engineering, but relatively less important in the humanities where such funding sources are extremely limited. Other work (McLaughlin, Montgomery and Mahan, 1979) indicates that different factors are rewarded for those in different ranks. Still others have shown that salaries are heavily influenced by the characteristics of the institution as a whole (Pounder, 1989).

These options represent an institutional frame of reference, a rank frame of reference, or a discipline frame of reference. Each of these options may be more or less problematic or appropriate depending on the institutional context and number of faculty. For example, the discipline frame of reference may work well for developing a relatively homogeneous grouping such as business, but there may not be enough faculty in each of the other major groupings to model each group on campus. Extremely small numbers are also difficult to deal with in such fields as engineering, where the number of women may make it almost impossible to find a statistical inequity. Trade-offs between homogenous groupings and adequate observations are often essential to get stable parameter estimates. Refer to Myers (1990) for a comprehensive discussion of regression theory.

One approach to balance this situation is to calculate residuals for each faculty member using each of the three frames of reference. This can be done if it is felt that each of the frames of reference is applicable. The result of this approach is three different estimated salaries (one based on rank, one based on discipline, and one based on the university model). These estimated salaries can then be averaged and the result is then subtracted from the individual's actual salary to calculate the residual.

Who Should (or Can Reasonably) Be Included in the Analysis?

The identification of individuals to be included in the study may be one of the most important and perhaps one of the more political parts of the process. A mix of political and practical considerations often determine the options. The obvious core of faculty is the full-time permanent faculty employed by the institution. This may be reduced to some degree by excluding faculty who work in professional schools, such as medicine or law, where there is a clear understanding that they are paid by a different set of rules. In those cases, a separate analysis for the excluded group(s) may be appropriate.

Another problematic group is administrative faculty. Generally, the variables which are related to the faculty in the various departments do not relate to or explain the salary of these individuals. Without the analytical framework, it is virtually impossible to develop an objective process for explaining the salaries for this group of individuals. Librarians, counselors, and certain other groups of employees may also carry faculty rank and decisions will have to made as to applicability of the model and process for these groups. Part-time and temporary faculty, such those on visiting appointments, and research faculty (post-doctoral appointments, research associates, and similar personnel involved in sponsored research activities on limited term contracts) also present special problems and are frequently excluded from the overall model. There probably is no substitute for a close scrutiny of the names and positions for those included in the study and truly singular cases may need to be removed to avoid serious distortions.

Selecting Measures to Include in the Model

The most important issue in selecting a methodology for evaluating salaries is perhaps the most difficult. *On what basis are faculty members paid?* This answer to this question requires that the institution have a conceptual model of why faculty are paid as they are. The model then reflects items which measure key aspects of performance. For some institutions, this question may be answered by fixed starting salaries and subsequent increases based on time in service and/or degrees earned, in which case salary equity studies are unnecessary. More common for institutions with salary adjustments based at least somewhat on merit, is a starting salary and pattern of increases reflecting a combination of the job market for a discipline or speciality (market), the degree to which the person does well on some part or all of the institution's mission (merit), and the level of the faculty member's professional stature and maturity (experience).

Most institutions lack a truly clear and consistent statement of the criteria used in setting starting salaries and providing merit increases. As a result, most studies go forward with those measures that are in the institutional data base, or that are relatively easy to collect. If the data base is one designed for payroll purposes rather than a more generic use as a human resource information system, the accuracy of the data may be highly suspect as one moves farther from the primary purpose of the data keeping. This is not a trivial problem, since the presence of incorrect data, even if relatively unimportant, can lead to serious questioning or rejection of the entire study.

It is important to carefully consider what role each of the areas of individual activities or experience, market, and merit plays in the salary structure of a given institution and then identify and include measures that adequately represent these areas in the regression analysis. This suggests that it is important to collect additional measures which are not readily available in the institution's data base where the benefits of inclusion are apt to outweigh the costs of collecting and including the measure in the analysis. For areas where it is not cost effective to include such measures, additional care must be used to interpret the results.

Some of the most frequently used variables are described below:

Market-Related Variables:

Anyone who has tried to hire a faculty member in business over the last few years knows the effect of discipline on the salaries of faculty (Botsch and Folsom, 1989). There are several possibilities for incorporating discipline considerations into the model. First is the question of aggregation. Here faculty in various departments may be grouped into various disciplines in order to increase the size of the various groups (Smart, 1991). For the more comprehensive institutions, the data collected and published by Oklahoma State University are very helpful and will often explain a great deal of salary variation.

Other sources of external market data are discussed in the faculty salary chapter (Howard, Snyder, and McLaughlin, 1992) in The Primer for Institutional Research.

There are two ways to handle the discipline differences in a regression approach. One way is to use the discipline grouping and develop a model within each group, the other way is to use discipline as a set of dichotomous (or dummy) variables and include them in a single model. If one chooses, the statistical improvement of the multiple model can be considered in terms of its increased use of degrees of freedom. In fact, the decision can be made to use both procedures and average the results.

Merit-Related Variables:

The difficulty in measuring merit is well documented (Pratt, 1988). One option is to use rank, which is most certainly related to salary. The concern of some, however, is that rank is also a result of discrimination. This may be true even where the ranks are primarily determined by hiring various faculty at the more senior ranks. One may then use a demographic model to test rank, but this is the wrong question. If there are rank differences based on merit, the demographic model is not likely to explain it unless the merit is directly related to maturity or time measures. One additional type of measure which should be considered is the set of items related to institution recognition of excellence. This recognition may be in the form of an endowed chair, a distinguished rank, or an award. If such items exist, they may well be of value. In some institutions, the amount of research or number of publications may be surrogates for merit.

Experience and Role-Related Variables:

Age is not considered an acceptable variable in salary modeling since discrimination on the basis of age is prohibited. However there are a number of time-related measures that should be considered and tested, such as time since highest degree, time in rank, and time at the institution.

It is also fairly obvious that salary is not a linear function of any of these time measures. For example, visual review of salary information will probably show that additional years spent as an associate professor beyond year seven or eight (or the usual period by which productive faculty have been successfully promoted to full professor) do not result in a higher salary. Using quadratic terms in addition to the initial variable is one option; however, even quadratic variables may not describe the true relationship.

Current and past administrative responsibilities often influence salary. A past dean who has returned to the faculty will very likely retain a higher than average salary for a full professor. At some institutions, there may be readily available measures of the faculty assignment to various aspects of the institutional missions of instruction, research, or service. If such measures exist, they too may lend explanatory power to the model.

Analyzing the Results:

Opinions differ as to whether statistical significance, in and of itself, determines whether inequities exist or not. While some suggest that a statistically significant result is the crucial evidence (Tesfagiorgis, 1991), others contend that the inability to meet such requirements as random samples or similar cell sizes suggest that little or no meaning should be attached to tests of statistical significance (Moore, 1992). It is likely that jury members will remain skeptical of university claims that there is no problem if women's salaries are pervasively lower and administrators failed to act because the differences were not "statistically significant." Intricacies of the debate on the importance of statistical significance are outside of the purpose of this paper, but a good rule of thumb might be to look at the test of statistical significance as only one measure that might identify a potential problem.

The ABSENCE of statistical significance should not be viewed as proof that a problem does NOT exist and researchers and administrators must examine the results more closely to be sure that there are not pervasive patterns of salary differentials. If a rank analysis (see Figure 1) shows that cumulative residuals for women in each of the four ranks are negative, the pervasiveness of the data suggests something is not right. Similarly, if (as Figure 2 depicts) residuals for women in the majority of colleges are negative in the college analysis, the pervasiveness of the data again implies a cause for possible concern.

At this point, some institutions turn the results of the regression analysis over to administrators or committees for examination of individual cases. Scattergrams and listings of individual residual amounts for both women and men then become useful information and a starting point for identification and correction of individual problems. In some cases the results of the analyses may be so pervasive across sub-groups (for example across rank or college) that a class-based solution or remedy is appropriate.

Because of the complexity of salary equity studies, it may be appropriate to use a combination of an individual approach and a class-based approach. The individual approach helps to deal with those classes that have a small cell size as well as those cases where an extreme negative residual results (for example a residual that is greater than two standard deviations negative) that might make the average residual for the class appear overly negative. Once these individual cases have been handled, the regression analysis may be rerun. If a systematic or pervasive negative residual still results for certain classes of females, then a class-based solution would be appropriate. Depending on the university, it may be possible to quantify this pervasiveness. For example, if the cumulative negative residual for classes in question is more than one or two percent of the university salary base, it could suggest that a university problem exists. If the cumulative negative residual for the classes is only a fraction of a percent of the cumulative university salary base, it is likely that the solution should be handled within the normal salary process. The following discussion expands upon how class-based solutions might be applied.

How Much Will It Take to Fix the Problem?

When a regression model is used that includes the variable of possible discrimination (gender in this case), some suggest that the regression weight assigned to that variable is the appropriate remedy or adjustment that should be applied (Tesfagiorgis, 1991). When a residual approach based on multiple frames of reference is used, the solution is not as straight forward. Intuitively one might think that adding the average negative residual amount to each group member's individual salary would remedy the salary inequity, but modeling this approach shows that this is not the case. When more thought is given to the situation, the explanation becomes apparent. First, when the average negative residual is added to the salaries of faculty with negative residuals, but nothing is added or subtracted from the salaries of individuals who exhibit positive salary residuals, only a portion of the individuals in the group are affected and the negative residual does not go away completely. Second, when multiple frames of reference are used it is more difficult to predict exactly the effect of adding the negative residuals.

Research by Gaylord and McLaughlin (1991) suggests that the following iterative approach can be used to determine a remedy to the inequity:

1. Run the regression model to calculate the residual for each faculty member.

2. Group the residuals in order to identify potential problem areas. This grouping may be by college; by rank; by college-rank; by department, etc. In all cases separate, average residuals will be calculated by gender. Care should be taken to group in such a matter as to avoid numerous small cell sizes.

3. For each group that has an average negative salary residual (for example, women who are assistant professors in architecture), add that average amount to the individual salaries of each faculty member in the group.

4. Repeat the process until average residuals for each group are close to zero or are positive.

When choosing the grouping for the residual, care should be taken to consider the effect of the grouping on residuals of other possible groupings. For example, given Figure 1, it appears that the most severe inequities exist at the rank level. However, if the iterative process is run using rank as the grouping, the result of the process appears to correct the inequities by rank, but it has no effect on, or aggravates the situation from the college perspective.

A similar problem results when a college approach is taken; the inequities by college are corrected, but the inequities by rank are aggravated. While a department-rank approach makes inherent sense, the small size of many departments may make it infeasible. A college-rank approach seems to be a reasonable compromise and is used in this sample set. The college-rank approach considers discipline and rank, while generally retaining large enough cell sizes to work with.

Table 1 gives an example of the results from a sample set of data which is grouped into classes by college-rank combinations. For each college-rank combination information from the initial regression run is provided (n, average residual, and cumulative residual). The "total cost to fix" column gives the total amount that was added back during the iterative process. Because this amount actually overcorrects the situation in some cases and because this example assumes that only limited funds are available, approximately half of this amount was actually applied. This amount was prorated based on the amounts in the "total cost to fix" column. The final two columns give the resulting average and cumulative residuals after applying the funds to remedy the inequities.

Figure 3 provides a before and after look at the cumulative residuals for female faculty members by college-rank combination. A few items deserve comment. First, as far as the female residuals are concerned, it appears that the cases exhibiting the largest negative residuals received the greatest correction and that most negative residuals were corrected to some extent. Second, if a similar graph is prepared for male residuals, the remedy applied appears to have very little effect on the male residuals.

It should be noted that the regression model used has a limited number of variables related to merit. Of course variables such as whether or not the faculty member is a distinguished faculty member or whether or not the faculty member is tenured are related to merit, but are not direct measures of merit. Because of the difficulty in obtaining direct measures, merit is often one area that is not encompassed by the regression model. When this is the case, any resulting negative residuals may be explained by poor performance. When females as a whole exhibit negative residuals or less positive residuals than their male colleagues, it is difficult to explain away the residuals with merit alone. It would be a rare occurrence that all of these females were actually less meritorious than all of the males.

Equity Adjustments: Who Gets Them and How Much?

A class action approach is defined as applying the agreed upon remedy for the given class of individuals to those individuals. This leaves a good deal of leeway. Two approaches come to mind. First, a constant-dollar approach could be used where every member of the class receives either the same lump-sum amount (remedy for entire class divided by number of individuals in the class). Another alternative would be a constant-percent approach. This would entail dividing the total remedy for the entire class by the sum of the salaries for the members making up the class, yielding a percentage that would then be applied to each group member's salary base. The constant-dollar approach favors the lower paid faculty members in the class, while the constant-percent approach appears to favor the higher paid members of the class.

While either of these approaches would provide the purest form of a class remedy, those involved in the process are likely to object to ignoring merit in the decision of who should benefit from the adjustments and by how much. One answer to this might be to give the dean or department head veto power when

applying the remedies. If these administrators truly felt that one of the individuals in the group was unworthy of the remedy, they could withhold the remedy. This brings up additional decisions. Would the adjustment funds that were not applied be returned to the Provost or President? Would they be distributed in the same constant approach across the remaining class members? Or, would they remain with the dean or department head to be used for other adjustments?

Class-based solutions, while appealing for their consistency of treatment, create other complications since they ignore individual circumstances. An alternative variation might be a discretionary approach where the dean or department head is given discretion in applying the remedy across the group. In this version, the dean or department head would be given funds for the entire class with the provision that the entire amount would have to be applied and that it could only be applied to members in the group. The assumption is that the highest achiever in the group would receive the largest remedy, while underachievers in the group would receive little, if any, remedy. In all cases, it should be remembered that a highly productive female SHOULD have as large a positive residual as a comparably talented male; if she does not this too is an inequity.

Implementation

While the technical aspects of conducting a defensible salary equity study may be a challenge, implementation of remedies, when called for, may test institutional politics in even more painful ways. Merit is a cherished principle among most academics and a study that suggests that women's salaries may be individually or systematically tainted by discriminatory judgments is not a result that administrators or faculty are likely to embrace with enthusiasm. One should not wait until the study is completed to ask questions about who will review the study's findings and how remedies will be implemented. Developing a list of stake-holders in the process may help in identifying implementation strategies that will be consistent with the institutional culture. University, college, and departmental administrators; faculty leaders; major institution-wide committees; women's caucuses; and male faculty are among the usual stake-holders on salary equity issues. Predictably, there will be strong feelings (pro and con) expressed by a few key actors, but not all members of any group will read the study results in the same way or agree on an appropriate course of action.

- University-level administrators: The variation in commitment will be great from campus to campus, but many top-level administrators are well aware that "it falls to the administration to make sure the process produces decisions that are fair" (Lee, 1989). They are, after all, the ones who will be involved in expensive and disruptive litigation whether or not the faculty participate in academic personnel decisions. Thus, personal conviction aside, it is possible, even necessary, to have the commitment of the institution's major administrators to address effectively salary equity concerns.

- College and department-level administrators: The enthusiasm for salary equity adjustments is not likely to be high in this group. Recognition of inequities is recognition that as individuals or as a

group, college and departmental administrators have not been acting fairly toward women. This is not something that anyone is eager to own up to and many will actively deny.

- Leadership of the Faculty Senate or similar faculty-controlled bodies: Depending on the campus situation, it may be important to involve leaders of the Faculty Senate. Informing them of the study and its results will help build recognition and understanding of the problem and necessity for action. Their involvement may be helpful in determining possible variables for inclusion in the regression model as well as in fashioning institution-specific procedures for reviewing individual cases.

- Representative institution-wide committees: Similarly, the campus may already have a functioning representative committee for budget and planning, for example, which might be involved in the salary review process, or an ad-hoc task force may be established to oversee the process.

- Women's Caucuses or women's advocacy groups: Many campuses already have active women's groups. Indeed, it may have been these groups which demanded that a salary equity study be conducted and adjustments made accordingly. Once again, the role of this group in the process must be carefully considered and not ignored. If there is no caucus or formal women's group, female faculty leaders may be identified and their advice and involvement sought. One note of caution -- it is a mistake to believe that all women faculty will automatically support equity adjustments. Some will feel as strongly as their male colleagues that class-based solutions are an unacceptable violation of merit principles. Others may feel that each woman should make her place on her own.

- Male Faculty: It should be expected that some male faculty will be openly hostile to the process. This may be manifest by severe questioning or rejection of the study methodology or data, or by stating their personal conviction that negative residuals for female faculty are easily explained by their poor performance, lack of merit, or market demand. In cases of pervasive negative residuals, it is difficult to sustain the premise that the institution has deliberately sought and appointed inferior candidates, most or all of whom were women, though a few may wish to hold this extreme opinion. It is helpful to tap male faculty leaders who hold a different viewpoint to counter these claims and to help answer objections.

Fashioning an Effective Process

Several descriptions of salary equity studies have been published, see for example a description of the process at the University of Maryland College Park (Brown et al, 1984; Ott et al, 1983; Hurley et al, 1981) and at Arizona State University (Anderson and Wilson, 1985). In 1980, the University of Maryland College Park (UMCP) began a series of statistical studies. Following the 1981 study, an annual process was established for reviewing female faculty members' salaries to the salaries of comparably-situated men. The process included a review committee for each of the five academic divisions, composed of five senior faculty, at least two of whom were women. As salaries of faculty from

specific departments were reviewed, two senior faculty members from the department were added to the committee. Department chairs were consulted but not permitted to serve as review committee members. Initially vitae of all female faculty members were reviewed and compared to selected male faculty. (The process was subsequently streamlined, using a set of priorities for review, which assured that every woman's salary would be reviewed at least once every three years.) The committee was given faculty rosters, a variety of scattergrams based on the statistical analyses, and tables of newly promoted and newly hired faculty. Adjustments were recommended for women (and men) whose merit adjustment recommendations from the department head were less than the committee's determination of her appropriate salary. This process did not produce class-based solutions, but used statistical analyses to pinpoint problems and to monitor overall salary equity and the outcomes of the committee reviews.

Old Dominion University (ODU) in Virginia also has nearly a decade of experience with conducting annual salary equity reviews, initially in response to demands from their Women's Caucus. Their process provides at least four ways for individual salaries to be identified for scrutiny. The Office of Institutional Research annually conducts a salary equity analysis using regression and flags negative female residuals for review. The same data base is then used to prepare reports of salaries by college, department, rank, and gender, including basic information such as year of degree and year of hire, but excluding names. The reports are shared with the Affirmative Action Officer and the Women's Caucus; each identifies individual salaries for closer scrutiny. The Caucus also sends a letter to individual female faculty and administrators inviting them to self-identify if they believe their salary is inequitable. All names/salaries identified in the process are then topics for discussion between the Affirmative Action Officer and the department head, without revealing the source of the "flagging." The President is involved in making final decisions. The Caucus remains active in encouraging institutional attention to the problem. Women faculty who have received adjustments through this process are notified of the equity adjustment as separate from any merit adjustment. The funds for adjustments are provided by the President. By this point, the process is relatively routine and widely accepted as necessary. The fact that both UMCP and ODU have found it necessary to repeat the process annually simply underlines how persistent they consider the problem.

Virginia Commonwealth University underwent quite a different experience this year, suffering scathing editorial criticism from the press for its efforts (see "VCU's Equity Blunderbuss," in the Richmond Times-Dispatch, 1992). According to other press accounts (Boyer and Witt, 1992), VCU conducted an equity study in 1989 and found that women's salaries lagged men's by $1,300 after adjusting for rank, years of experience, and discipline. An update of the study found the gap was almost $2,000. Two mostly male groups--Faculty Senate and a Provost-appointed committee--studied the issue and endorsed the adjustments. While the committee recommended across-the-board increases of 2.5 percent to all tenure-track women, the administration opted for evaluation of individual cases and appointed a three-woman task force. The task force, in turn, invited each woman faculty member to submit her credentials for review if desired. Resumes were evaluated, compared to males with similar background and to national salary averages for the field. All women submitting credentials to the committee received an

adjustment; these varied from one to 40 percent. Total funds allocated for 171 women were about $320,000. This in a year when faculty salaries were frozen. Press coverage of the adjustments was carried throughout the state, creating ripple effects at other institutions and serious tension on the VCU campus itself.

There appears to be no single method of implementation guaranteed to achieve equitable resolution of salary discrepancies AND widespread approval from the faculty and administration. The VCU case is a reminder that the process is public (particularly at public institutions) and difficult to control. Controversy can be easily inflamed by press coverage. Several recommendations may keep the process from self-destruction however. These recommendations are in no particular order. In fact, they may take place simultaneously and be headed up by different individuals or groups.

Develop a comprehensive educational program on diversity issues. Salary equity is only one of many issues that signals the fair treatment of women academics. Improving the climate for women and people of color requires a campus-wide commitment to nurturing achievement of all. Inequities are the result of deeply ingrained attitudes, norms and beliefs; lower salaries are only one manifestation of these. Statistical studies cannot change the culture. They are simply one part of a comprehensive effort.

Develop the salary model with care. Test variables for significant contribution, verify data with users and make appropriate corrections, and remain open to input from important stake-holders in the process. Arguing over the data and statistical methods paralyses the process and builds a skeptical and cynical response.

Develop a process that fits the institutional culture. Salary equity is not an issue which can be resolved by a faculty vote because the institution and its officers are vulnerable to litigation if personnel processes are proved discriminatory. Nevertheless, where the institution has a history of strong faculty participation then it might be appropriate to find ways to build it in the process. Many institutions struggle with how close to the vest to keep the data and the study results. Some go so far as to not inform those who received equity adjustments, leaving it unclear whether a sizeable increase was the result of exceptional merit or something else. The benefit of informing the recipient is a clear understanding that the administration is indeed monitoring salaries and working to correct inequities.

Avoid blame. There are many reasons that salary inequities may have occurred without assuming that each was purposeful discrimination. For example, lower starting salaries for females can be exacerbated if the female is a "trailing spouse" and not the one who is being hotly recruited. Some women hired before the Ph.D. is completed never catch up with their male counterparts after they earn their degree even though they perform comparably. Women academics are also disadvantaged by well-entrenched devaluation of disciplines and specialties in which women dominant. Even within male-dominated fields and departments, one may find a female academic paid substantially less than male colleagues because her particular expertise or research sub-specialty is less valued in the "market" than those of male

colleagues. Neither "merit" or "market" operate in neutral ways since they can be laden with biased assumptions. Finally, some inequities occur (for men as well) because of higher value attached to certain aspects of the faculty role. If sponsored research is highly valued by the college over a period of a decade, excellent teachers will be disadvantaged. This value system can interact with discipline, market, and gender in some very powerful ways, seriously depressing women's salaries and undervaluing their contributions to the life of the institution.

How to avoid blame, while at the same time holding administrators accountable for intentional or unintentional discrimination is difficult and may be best handled by a comprehensive education program for academic managers.

Monitor continuously. A one-time study and adjustments will very likely not solve the problem since salary inequities are a product of structural and societal discrimination, not simply individual actions. College and university administrators must constantly ask whether salary offers to women candidates are comparable to those for male hires, that women appointed to administrative positions are paid at the same level as comparable male administrators, and that women promoted in rank are being paid salaries appropriate to their new rank. Checking at the outset and at critical points of transition is helpful in spotting individual cases. An annual statistical review can also point out both class-based problems and exceptional negative residuals.

An important point is that a healthy institution will look for a variety of ways to deal with the issue--opportunities for individuals to self-identify and have their salary reviewed without prejudice, periodic statistical modeling, disclosure of salaries so faculty can verify for themselves whether there are widespread problems, and so on. Note that it may be necessary to consider adjustments for males whose salaries, after female adjustments are made, are then out-of-line.

Conclusion

Much of this paper has concentrated on developing a sound procedure for modeling salaries, identifying problem areas, and identifying and applying remedies. Even with such a procedure, there is still much discretion that must be used in interpreting the results, informing stakeholders, and implementing remedies. Throughout the development of a salary equity process many decisions will have to be made. The better the understanding of the culture and politics of the institution and the greater the involvement of key figures within the university community, the more apt the procedure will be accepted by the various stakeholders in the process. Whenever possible findings from the analytical process should be confirmed through alternative processes.

Table 1
Resulting Residuals After Applying $150,000
Using Proportional College-Rank Approach

Female Residuals by College Rank:

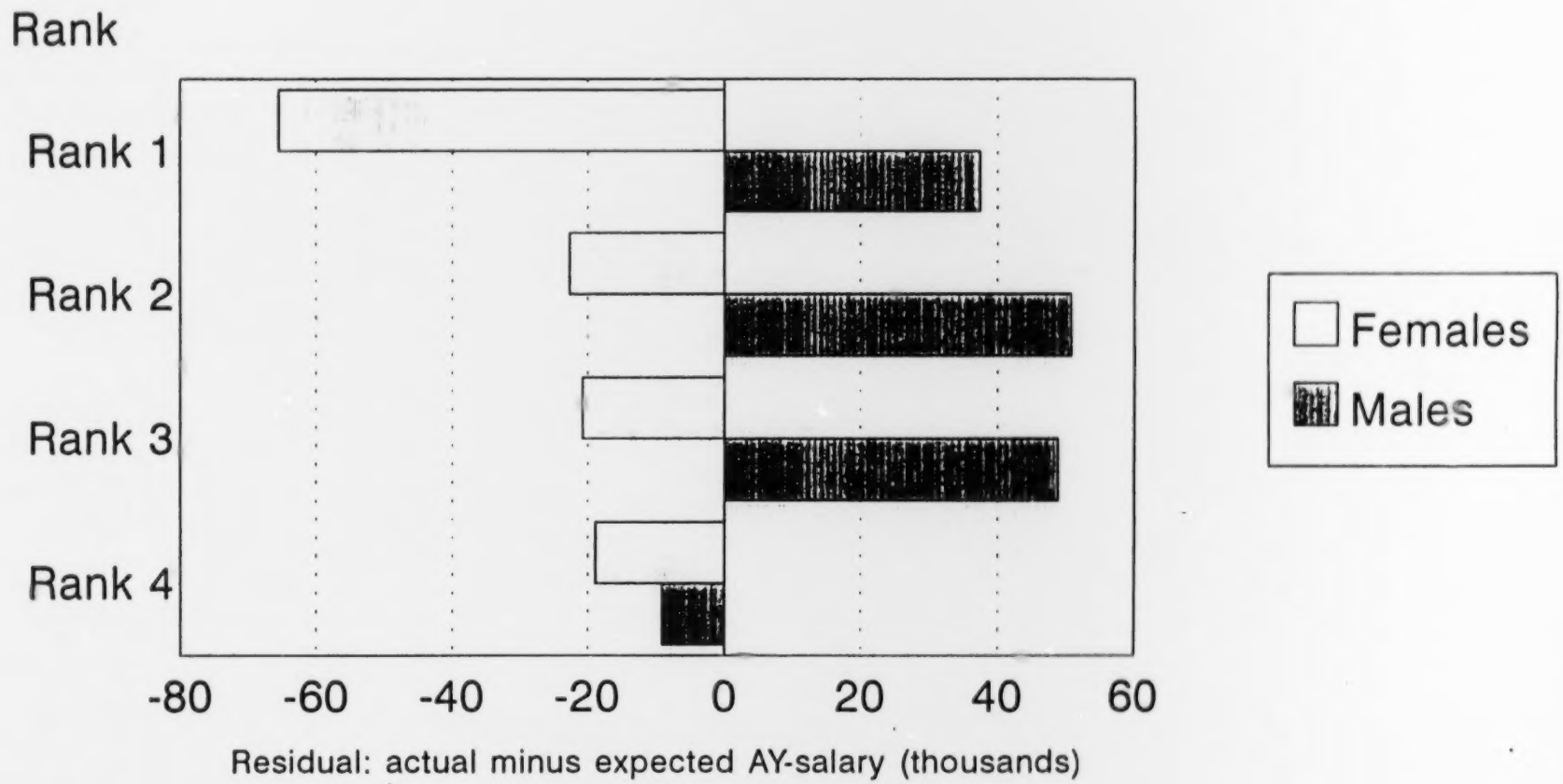
College	Rank	Original Residuals N	Original Residuals Average	Original Residuals Cumulative	Total Cost To Fix	Actual Amount Applied	Resulting Residuals Average	Resulting Residuals Cumulative
College 1	Rank 1	15	(2,081)	(31,208)	28,982	14,373	(336)	(5,040)
College 1	Rank 2							
College 1	Rank 3	4	(3,780)	(15,120)	14,394	7,139	(1,196)	(4,782)
College 1	Rank 4	6	(1,076)	(6,453)	10,827	5,370	(156)	(936)
College 9	Rank 1	7	464	3,245			453	3,171
College 9	Rank 2							
College 9	Rank 3	5	6,018	30,090			6,030	30,150
College 9	Rank 4	11	(2,115)	(23,265)	29,187	14,475	(1,052)	(11,567)

Actual amounts are adjusted by a constant factor.

Figure 1

Cumulative Salary Residuals

By Gender and Rank

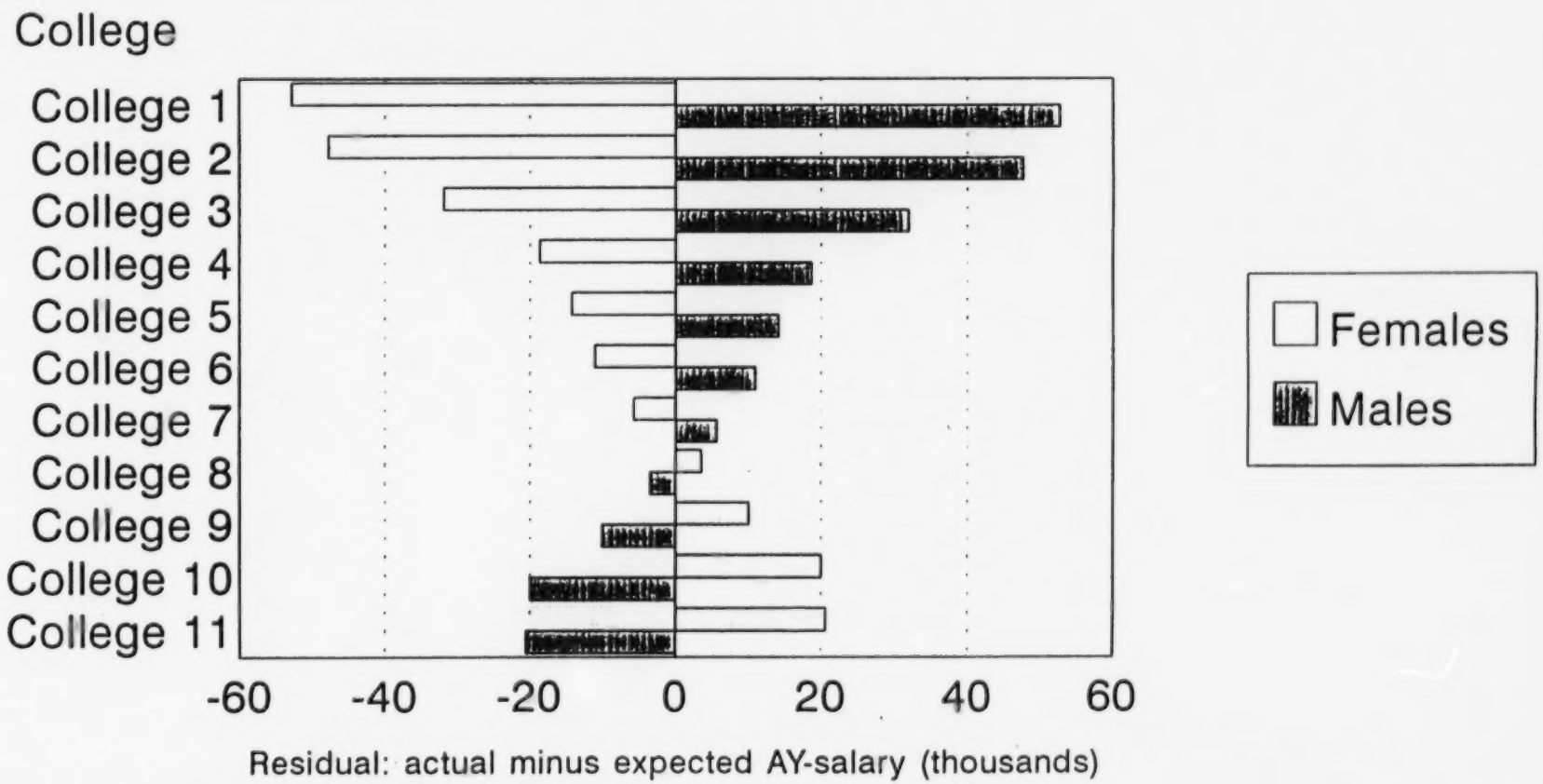


Fall 1991 full-time collegiate faculty
without administrative instructors.
Actual amounts are adjusted by a constant factor.

Figure 2

Cumulative Salary Residuals

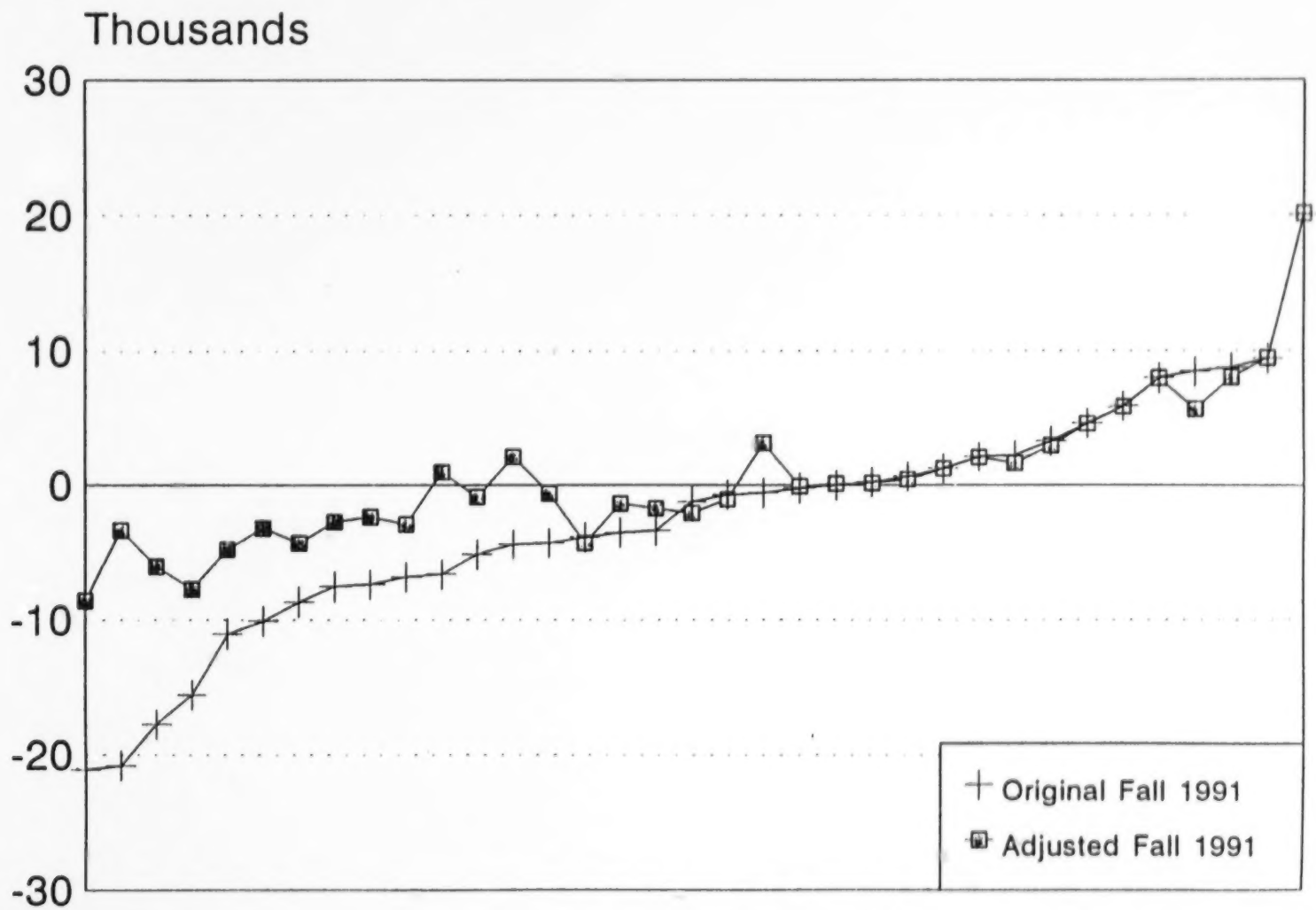
By Gender and College



Fall 1991 full-time collegiate faculty
without administrative instructors.
Actual amounts are adjusted by a constant factor.

Figure 3

Cumulative Female Faculty Salary Residuals By Rank-College Original vs. After Applying Half of "Total Cost To Fix"



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